

## Резюме: Мирошников Анатолий Иванович



### Адрес

Федеральное государственное  
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Институт биоорганической химии им.  
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### Контакты

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## Образование

1989	Россия, Москва	НПО "ВИЛР" Министерства медицинской и микробиологической промышленности СССР	присуждена ученая степень доктора химических наук за диссертацию "Структурно-функциональные исследования полимиксина В, фосфолипазы А2 и апамина"
1981	Россия, Москва	Московский институт тонкой химической технологии им. М.В. Ломоносова (МИТХТ), ф-т тонкой химической технологии	Присуждено учёное звание доцента кафедры химии и технологии тонких органических соединений
1968	Россия, Москва	Институт химии природных соединений АН СССР (ИХПС)	Присуждена учёная степень кандидата наук за диссертацию: "Масс-спектрометрическое определение аминокислотной последовательности в пептидах, содержащих остатки моноаминодикарбоновых кислот и их ω-амидов"
1957– 1963	Россия, Москва	Московский институт тонкой химической технологии им. М.В. Ломоносова (МИТХТ), ф-т тонкой химической технологии	диплом химика

## Работа в ИБХ

2018–2022	Научный руководитель
2020–2022	Заведующий отделом
2022–2022	Руководитель

## Членство в советах и комиссиях ИБХ

	Диссертационный совет
	Ученый совет
	Аттестационная комиссия
2022–наст.вр.	Методическая комиссия

## Награды

1999	Медаль Ордена «За заслуги перед Отечеством» II степени	
2012	Орден Почёта	
2005	Орден Дружбы	
1975	Медаль «За трудовую доблесть»	1975 и 1981 гг.
1996	Премии Правительства РФ в области науки и техники	1996 - За разработку и создание биотехнологического производства ликопида нового иммунокорректирующего лекарственного препарата, 2005 - За создание производства и внедрение в практику отечественного здравоохранения генно-инженерного инсулина человека
2024	Орден Александра Невского	За большой вклад в развитие отечественной науки, многолетнюю плодотворную деятельность и в связи с 300-летием со дня основания Российской академии наук.

## Членство в сообществах

**1987—наст. вр.:** Член редколлегии журнала "Биотехнология";

**1991—1998:** член редколлегии "Химико-фармацевтического журнала";

**1994:** Член-корреспондент Российской академии наук;

**1996—наст. вр.:** вице-президент Российского общества биохимиков и молекулярных биологов;

**1996—наст. вр.:** заметитель председателя Национального комитета биохимиков и молекулярных биологов;

**1998—наст. вр.:** член редколлегии журнала "Вопросы биологической, медицинской и фармацевтической химии";

**2000:** действительный член Российской академии наук;

**2003—наст. вр.:** заместитель преседателя Научного совета РАН по научному приборостроению;

**2003—наст. вр.:** вице-президент Общероссийской общественной организации ["Общество биотехнологов России имени академика Ю.А. Овчинникова"](#);

**2004—наст. вр.:** член Координационного совета РАН по инновационной деятельности;

**2005—наст. вр.:** председатель Президиума [Пушкинского научного центра РАН](#);

**2008—наст. вр.:** член Президиума РАН.

## Степени и звания

Академик

Доктор наук (Химические науки)

## Публикации

1. Kayushin AL, Antonov KV, Dorofeeva EV, Berzina MY, Arnautova AO, Prohorenko IA, **Miroshnikov AI**, Konstantinova ID (2024). A New Approach to the Synthesis of Anti-Reverse Cap Analog (ARCA) 2mGpppG. *Russ. J. Bioorganic Chem.* 50 (1), 1–7, [10.1134/S106816202402033X](https://doi.org/10.1134/S106816202402033X)
2. Azev VN, Baidakova LK, Chulin AN, Tuzikov AB, Kisilitsyn PG, Molchanov MV, **Miroshnikov AI** (2023). Regiospecific Preparation of a Suitably Protected  $\beta$ -Branched Aspartic Acid Dipeptide. *Russ. J. Bioorganic Chem.* 49 (4), 775–784, [10.1134/S1068162023040052](https://doi.org/10.1134/S1068162023040052)
3. Berzina MY, Eletskaia BZ, Kayushin AL, Dorofeeva EV, Lutonina OI, Fateev IV, Zhavoronkova ON, Bashorin AR, Arnautova AO, Smirnova OS, Antonov KV, Paramonov AS, Dubinnyi MA, Esipov RS, **Miroshnikov AI**, Konstantinova ID (2023). Intramolecular Hydrogen Bonding in N6-Substituted 2-Chloroadenosines: Evidence from NMR Spectroscopy. *Int J Mol Sci* 24 (11), 9697, [10.3390/ijms24119697](https://doi.org/10.3390/ijms24119697)
4. Azev VN, Chulin AN, Molchanov MV, **Miroshnikov AI** (2023). Convenient Preparation of t-Butyl  $\alpha$ -Protected Amino Acid Esters from t-Butanol. *Russ. J. Bioorganic Chem.* 49 (3), 524–528, [10.1134/S1068162023030056](https://doi.org/10.1134/S1068162023030056)
5. Eletskaia BZ, Berzina MY, Fateev IV, Kayushin AL, Dorofeeva EV, Lutonina OI, Zorina EA, Antonov KV, Paramonov AS, Muzyka IS, Zhukova OS, Kiselevskiy MV, **Miroshnikov AI**, Esipov RS, Konstantinova ID (2023). Enzymatic Synthesis of 2-Chloropurine Arabinonucleosides with Chiral Amino Acid Amides at the C6 Position and an Evaluation of Antiproliferative Activity In Vitro. *Int J Mol Sci* 24 (7), 6223, [10.3390/ijms24076223](https://doi.org/10.3390/ijms24076223)
6. Likhvantseva VG, Gevorgyan AS, Kapkova SG, Kuzmin KA, **Miroshnikov AI**, Esipov RS (2022). Development of criteria for a comprehensive assessment of the effectiveness of antiangiogenic drugs on models of neovascularization of the eye (experimental studies). *Glaz* 24 (3), 39–47, [10.33791/2222-4408-2022-3-39-47](https://doi.org/10.33791/2222-4408-2022-3-39-47)
7. Smirnova OS, Berzina MY, Fateev IV, Eletskaia BZ, Kostromina MA, Kayushin AL, Paramonov AS, Prutkov AN, Grebenkina LE, Chudinov MV, Andronova VL, Galegov GA, Deryabin PG, **Miroshnikov AI**, Esipov RS, Konstantinova ID (2022). Chemo-enzymatic synthesis of 5-substituted ribavirin analogs: Unexpected cooperative effect in the interaction of 5-alkyloxymethyl 1,2,4-triazol-3-carboxamides with E. coli purine nucleoside phosphorylase active site. *Sustainable Chemistry and Pharmacy* 30, 100881, [10.1016/j.scp.2022.100881](https://doi.org/10.1016/j.scp.2022.100881)
8. Berzina MY, Eletskaia BZ, Kayushin AL, Dorofeeva EV, Lutonina OI, Fateev IV, Paramonov AS, Kostromina MA, Zayats EA, Abramchik YA, Maltsev DV, Naumenko LV, Taran AS, Yakovlev DS, Spasov AA, **Miroshnikov AI**, Esipov RS, Konstantinova ID (2022). Synthesis of 2-chloropurine ribosides with chiral amino acid amides at C6 and their evaluation as A1 adenosine receptor agonists. *Bioorg Chem* 126, 105878, [10.1016/j.bioorg.2022.105878](https://doi.org/10.1016/j.bioorg.2022.105878)
9. Kayushin AL, Tokunova JA, Fateev IV, Arnautova AO, Berzina MY, Paramonov AS, Lutonina OI, Dorofeeva EV, Antonov KV, Esipov RS, Mikhailopulo IA, **Miroshnikov AI**, Konstantinova ID (2021). Radical dehalogenation and purine nucleoside phosphorylase e. Coli: How does an admixture of 2',3'-anhydroinosine hinder 2-fluoro-cordycepin synthesis. *Biomolecules* 11 (4), , [10.3390/biom11040539](https://doi.org/10.3390/biom11040539)
10. Artsemyeva JN, Remeeva EA, Buravskaya TN, Konstantinova ID, Esipov RS, **Miroshnikov AI**, Litvinko NM, Mikhailopulo IA (2020). Anion exchange resins in phosphate form as versatile carriers for the reactions catalyzed by nucleoside phosphorylases. *Beilstein J Org Chem* 16, 2607–2622, [10.3762/bjoc.16.212](https://doi.org/10.3762/bjoc.16.212)
11. (книга) Konstantinova ID, Kayushin AL, Arnautova AO, Antonov KV, Yeletskaia BZ, Berzina MY, Dorofeeva EV, Lutonina OI, Fateev IV, Esipov RS, **Miroshnikov AI** (2020). Convenient Approach to the Biosynthesis of C2,C6-Disubstituted Purine Nucleosides Using E. coli Purine Nucleoside Phosphorylase and Arsenolysis. *Wiley-VCH, John Whittall (Editor), Peter W. Sutton (Editor)* , 211–215.
12. Eletskaia BZ, Gruzdev DA, Krasnov VP, Levit GL, Kostromina MA, Paramonov AS, Kayushin AL, Muzyka IS, Muravyova TI, Esipov RS, Andronova VL, Galegov GA, Charushin VN, **Miroshnikov AI**, Konstantinova ID (2019). Enzymatic Synthesis of Novel Purine Nucleosides Bearing a Chiral Benzoxazine Fragment. *Chem Biol Drug Des* 93 (4), 605–616, [10.1111/cbdd.13458](https://doi.org/10.1111/cbdd.13458)
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14. (конференция) Esipov RS, Timofeev VI, Kuranova IP, Kostromina MA, Tuzova ES, Abramchik YA, Esipova

- LV, Sinitsyna EV, Fateev IV, Muravieva TI, **Miroshnikov AI** (2018). A new approach for the synthesis of biologically important nucleotides using a thermostable multi-enzymatic cascade. *J Bioenerg Biomembr* 50 (6), 467–603, [10.1007/s10863-018-9775-7](https://doi.org/10.1007/s10863-018-9775-7)
15. Esipov RS, Stepanenko VN, Zvereva IO, Makarov DA, Kostromina MA, Kostromina TI, Muravyova TI, **Miroshnikov AI**, Grishin EV (2018). Erratum to: Biotechnological Method for Production of Recombinant Peptide Analgesic (Purotoxin-1) from *Geolycosa* sp. Spider Poison (Russian Journal of Bioorganic Chemistry, (2018), 44, 1, (32-40), 10.1134/S1068162018010065). *Russ. J. Bioorganic Chem.* 44 (4), 472, [10.1134/S1068162018040064](https://doi.org/10.1134/S1068162018040064)
  16. Esipov RS, Stepanenko VN, Zvereva IO, Makarov DA, Kostromina MA, Kostromina TI, Muravyova TI, **Miroshnikov AI**, Grishin EV (2018). Biotechnological Method for Production of Recombinant Peptide Analgesic (Purotoxin-1) from *Geolycosa* sp. Spider Poison. *Russ. J. Bioorganic Chem.* 44 (1), 32–40, [10.1134/S1068162018010065](https://doi.org/10.1134/S1068162018010065)
  17. Kharitonova MI, Konstantinova ID, **Miroshnikov AI** (2018). Benzimidazole nucleosides: Antiviral and antitumour activities and methods of synthesis. *RUSS CHEM REV* 87 (11), 1111–1138, [10.1070/RCR4832](https://doi.org/10.1070/RCR4832)
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  20. Kharitonova MI, Antonov KV, Fateev IV, Berzina MY, Kaushin AL, Paramonov AS, Kotovskaya SK, Andronova VL, Konstantinova ID, Galegov GA, Charushin VN, **Miroshnikov AI** (2017). Chemoenzymatic Synthesis of Modified 2'-Deoxy-2'-fluoro- $\beta$ -D-arabinofuranosyl Benzimidazoles and Evaluation of Their Activity Against Herpes Simplex Virus Type 1. *Synthesis (Stuttg)* 49 (5), 1043–1052, [10.1055/s-0036-1588625](https://doi.org/10.1055/s-0036-1588625)
  21. Kharitonova MI, Denisova AO, Andronova VL, Kayushin AL, Konstantinova ID, Kotovskaya SK, Galegov GA, Charushin VN, **Miroshnikov AI** (2017). New modified 2-aminobenzimidazole nucleosides: Synthesis and evaluation of their activity against herpes simplex virus type 1. *Bioorg Med Chem Lett* 27 (11), 2484–2487, [10.1016/j.bmcl.2017.03.100](https://doi.org/10.1016/j.bmcl.2017.03.100)
  22. Stepchenko VA, **Miroshnikov AI**, Seela F, Mikhailopulo IA (2016). Enzymatic synthesis and phosphorolysis of 4(2)-thio- and 6(5)-azapyrimidine nucleosides by *E. coli* nucleoside phosphorylases. *Beilstein J Org Chem* 12, 2588–2601, [10.3762/bjoc.12.254](https://doi.org/10.3762/bjoc.12.254)
  23. Romanov VP, Kostromina TI, **Miroshnikov AI**, Feofanov SA (2016). Preparative method for obtaining recombinant human interferon  $\alpha$ 2b from inclusion bodies of *Escherichia coli*. *Russ. J. Bioorganic Chem.* 42 (6), 631–637, [10.1134/S1068162016040154](https://doi.org/10.1134/S1068162016040154)
  24. Esipov RS, Abramchik YA, Fateev IV, Muravyova TI, Artemova KG, Konstantinova ID, Kuranova IP, **Miroshnikov AI** (2016). Recombinant phosphoribosyl pyrophosphate synthetases from *Thermus thermophilus* HB27: Isolation and properties. *Russ. J. Bioorganic Chem.* 42 (5), 512–521, [10.1134/S1068162016040075](https://doi.org/10.1134/S1068162016040075)
  25. Lebedev VG, Faskhiev VN, Kovalenko NP, Shestibratov KA, **Miroshnikov AI** (2016). Testing transgenic aspen plants with bar gene for herbicide resistance under semi-natural conditions. *Acta Naturae* 8 (2), 92–106, [10.32607/20758251-2016-8-2-92-101](https://doi.org/10.32607/20758251-2016-8-2-92-101)
  26. Konstantinova ID, Fateev IV, **Miroshnikov AI** (2016). The arsenolysis reaction in the biotechnological method of synthesis of modified purine  $\beta$ -D-arabinonucleosides. *Russ. J. Bioorganic Chem.* 42 (4), 372–380, [10.1134/S1068162016040105](https://doi.org/10.1134/S1068162016040105)
  27. Esipov RS, Makarov DA, Stepanenko VN, **Miroshnikov AI** (2016). Development of the intein-mediated method for production of recombinant thymosin  $\beta$ 4 from the acetylated in vivo fusion protein. *J Biotechnol* 228, 73–81, [10.1016/j.jbiotec.2016.02.021](https://doi.org/10.1016/j.jbiotec.2016.02.021)
  28. Esipov RS, Abramchik YA, Fateev IV, Konstantinova ID, Kostromina MA, Muravyova TI, Artemova KG, **Miroshnikov AI** (2016). A Cascade of Thermophilic Enzymes As an Approach to the Synthesis of Modified Nucleotides. *Acta Naturae* 8 (4), 82–90, [10.32607/20758251-2016-8-4-82-90](https://doi.org/10.32607/20758251-2016-8-4-82-90)

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30. Kharitonova MI, Fateev IV, Kayushin AL, Konstantinova ID, Kotovskaya SK, Andronova VL, Galegov GA, Charushin VN, **Miroshnikov AI** (2016). Chemoenzymatic Synthesis and Antiherpes Activity of 5-Substituted 4,6-Difluorobenzimidazoles Ribo- and 2'-Deoxyribonucleosides. *Synthesis (Stuttg)* 48 (3), 394–406, [10.1055/s-0035-1560911](https://doi.org/10.1055/s-0035-1560911)
31. Esipov RS, Abramchik YA, Fateev IV, Muravyova TI, Skoblov YS, Kostromina MA, **Miroshnikov AI** (2016). Preparation and study of the substrate specificity of thermophilic ribokinase from *Thermus* sp. 2.9. *Russian Journal of Biopharmaceuticals* 8 (2), 3–12.
32. Fateev IV, Kharitonova MI, Antonov KV, Konstantinova ID, Stepanenko VN, Esipov RS, Seela F, Temburnikar KW, Seley-Radtke KL, Stepchenko VA, Sokolov YA, **Miroshnikov AI**, Mikhailopulo IA (2015). Recognition of Artificial Nucleobases by *E. coli* Purine Nucleoside Phosphorylase versus its Ser90Ala Mutant in the Synthesis of Base-Modified Nucleosides. *Chemistry* 21 (38), 13401–13419, [10.1002/chem.201501334](https://doi.org/10.1002/chem.201501334)
33. Fateev IV, Antonov KV, Konstantinova ID, Muravyova TI, Seela F, Esipov RS, **Miroshnikov AI**, Mikhailopulo IA (2014). The chemoenzymatic synthesis of clofarabine and related 2'-deoxyfluoroarabinosyl nucleosides: The electronic and stereochemical factors determining substrate recognition by *E. coli* nucleoside phosphorylases. *Beilstein J Org Chem* 10, 1657–1669, [10.3762/bjoc.10.173](https://doi.org/10.3762/bjoc.10.173)
34. Zeifman AA, Novikov FN, Stroylov VS, Stroganov OV, Chilov GG, Skoblov AY, **Miroshnikov AI**, Skoblov YS (2014). 2,3-Dihydroxy-quinoxaline induces ATPase activity of Herpes Simplex Virus thymidine kinase. *FEBS Lett* 588 (3), 509–511, [10.1016/j.febslet.2013.12.017](https://doi.org/10.1016/j.febslet.2013.12.017)
35. Deryabin PG, Galegov GA, Konstantinova ID, Muzyka IS, **Miroshnikov AI**, Lvov DK (2014). The combination of ribavirin and ozeltamivir effectively inhibits reproduction of influenza A virus resistant to rimantadine (Amantadine) in vitro and in vivo. *Dokl Biochem Biophys* 455 (1), 80–83, [10.1134/S1607672914020100](https://doi.org/10.1134/S1607672914020100)
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37. Vorobiev I, Matskevich V, Kovnir S, Orlova N, Knorre V, Jain S, Genkin D, Gabibov A, **Miroshnikov A** (2013). Chemical polysialylation: Design of conjugated human oxyntomodulin with a prolonged anorexic effect in vivo. *Biochimie* 95 (2), 264–270, [10.1016/j.biochi.2012.09.024](https://doi.org/10.1016/j.biochi.2012.09.024)
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41. Esipov R, Beyrakhova K, Likhvantseva V, Stepanova E, Stepanenko V, Kostromina M, Abramchik Y, **Miroshnikov A** (2012). Antiangiogenic and antivasular effects of a recombinant tumstatin-derived peptide in a corneal neovascularization model. *Biochimie* 94 (6), 1368–1375, [10.1016/j.biochi.2012.03.007](https://doi.org/10.1016/j.biochi.2012.03.007)
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